
Atmospheric Results from the MGS Horizon Science Experiment

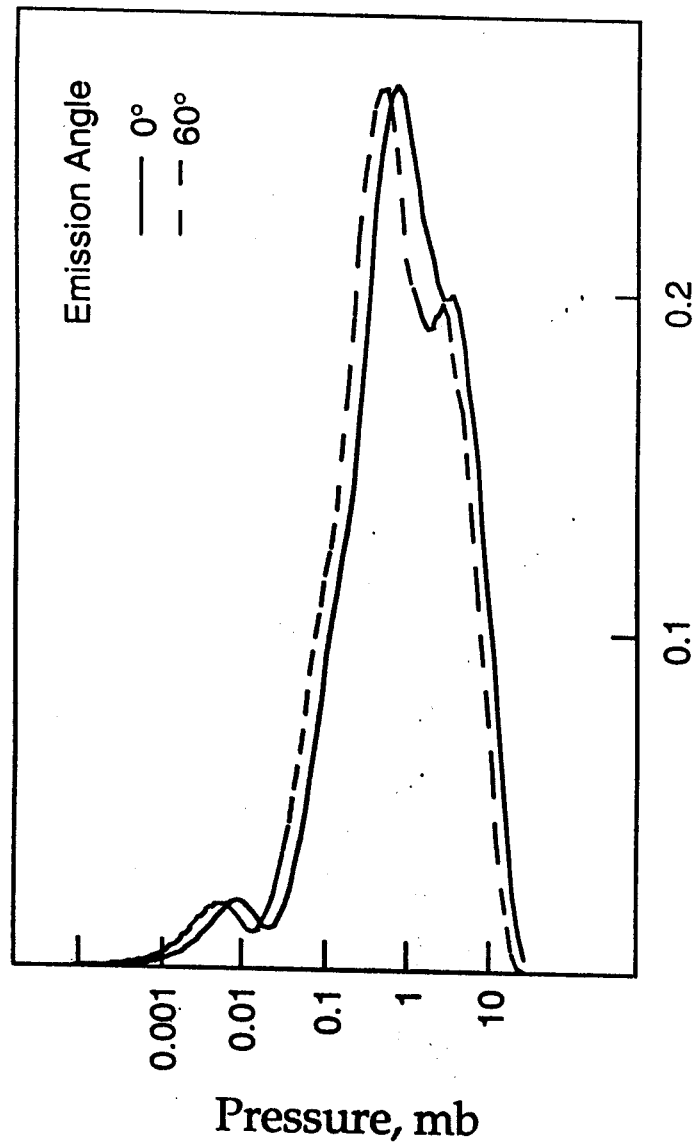
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Horizon Science Experiment

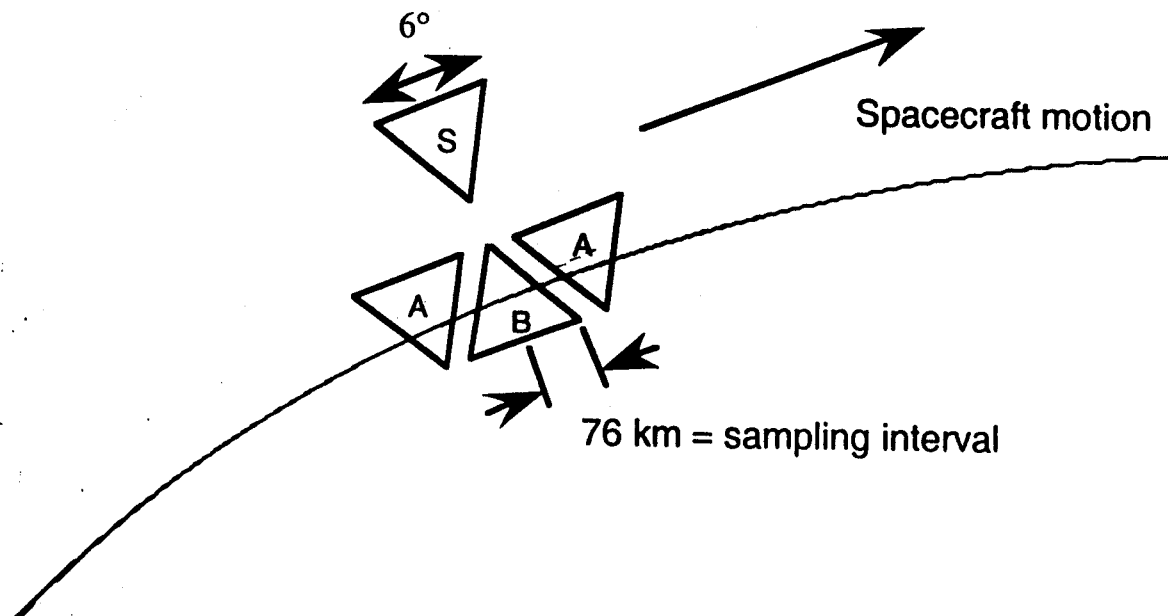
MHSA Weighting Functions



- Instrument uses 15 μm band to measure broad region of middle atmosphere

Horizon Science Experiment

- Fields of view normally sample the limb in four orthogonal directions
- One quadrant shown here



Horizon Science Experiment

- Mars Horizon Sensor has provided 24 hr/day of global 15 μm data since March 1999 (Ls 122)
- 12 polar orbits /day yield fast coverage buildup
- Calibration of the Horizon Sensor in its on-limb case obtained with the Thermal Emission Spectrometer pointing in the same direction

■ Recent results:

- Strong changes seen in the dust storm season
- Indication of real diurnal variation of temps and equatorial longitude-fixed wave behavior
- Movies of both diurnal behavior and lat/lon maps have been made for each 5° of L_s since $L_s 122^\circ$.
- These movies indicate consistent fixed wave behavior, most likely stimulated by topography, but regional dust behavior may also contribute
- Travelling waves occur in northern midlatitudes in the dust storm season, especially $L_s 286-298^\circ$

Horizon Science Experiment

■24

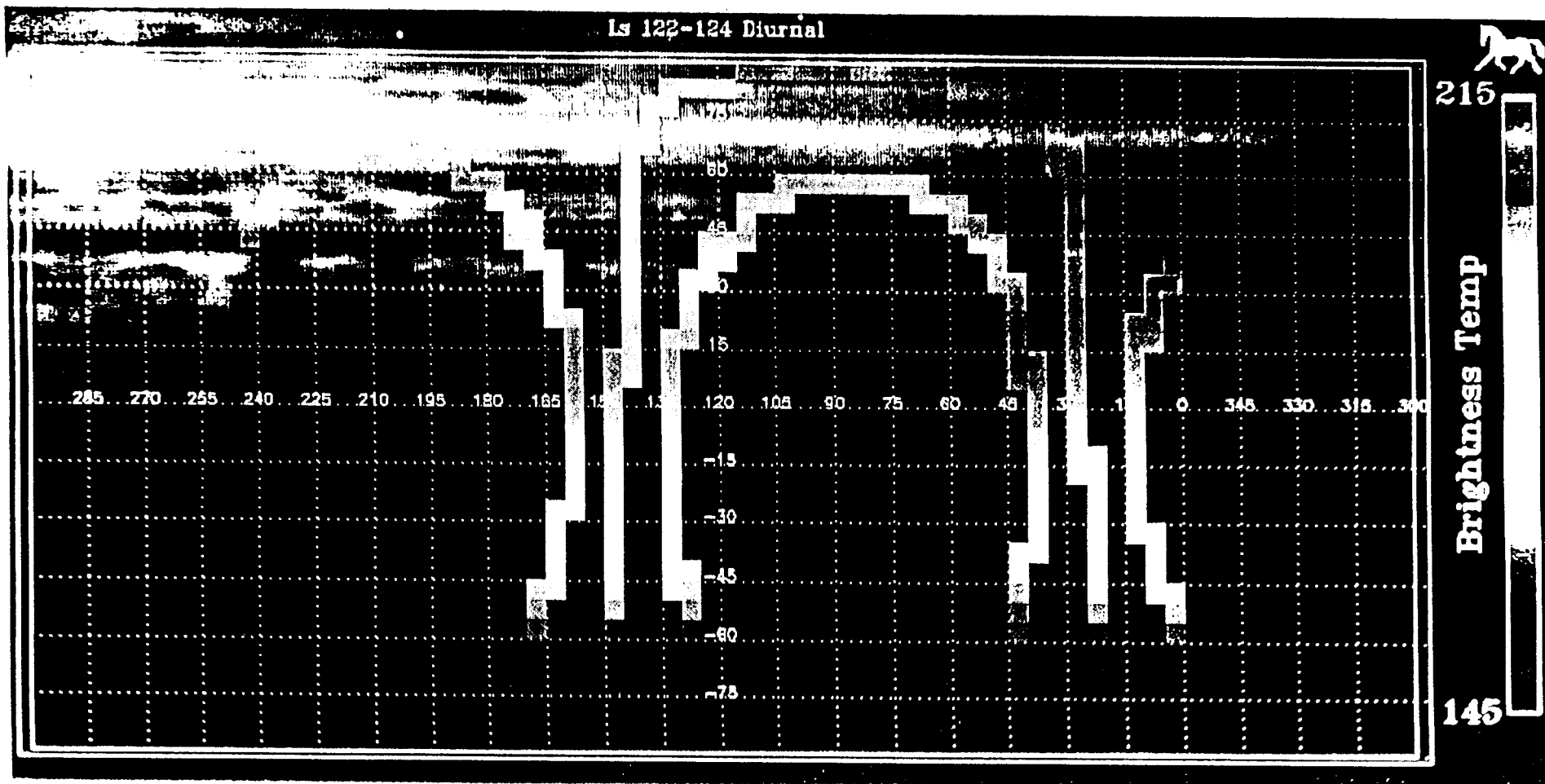
18

12

6

0

Is 122-124 Diurnal



Horizon Science Experiment

■ 180

90

0

270

180

90

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